

Attorney Docket: 1830/50325

**PATENT** 

UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:

MASAHIRO IMOTO ET AL.

JUL 2 2 2002

RECEIVED

Serial No.:

09/933,717

Group Art Unit:

Filed:

AUGUST 22, 2001

Examiner:

**TECH CENTER 1600/2900** 

Title:

HETEROCYCLIC COMPOUNDS HAVING EFFECT OF

ACTIVATING NICOTINIC ACETYLCHOLINE ALFA4 BETA2

RECEPTOR

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR §§ 1.97 and 1.98

Commissioner for Patents Washington, D.C. 20231

Sir:

This supplements the Information Disclosure Statement submitted in the above-identified application on December 7, 2001.

In accordance with the duty of disclosure under 37 CFR §1.56, Applicant hereby notifies the U.S. Patent and Trademark Office of the documents which are listed on the attached Form PTO-1449 and/or listed herein and which the Examiner may deem relevant to patentability of the claims of the above-identified application.

English abstracts of the European patent no. 0268915 and Japanese patent no. 52095666 are submitted herewith. Please note that only the English abstract of Japanese patent no. 63253084 is enclosed.

In compliance with the concise explanation requirement under 37 CFR §1.98(a)(3) for foreign language documents, Applicant encloses herewith a copy of a corresponding foreign Search Report citing such documents.

The present Information Disclosure Statement is being filed (1) no later than three months from the application's filing date or (2) before the mailing date of the first Office Action on the merits (whichever is later), and therefore no certification under 37 C.F.R. §1.97(e) or fee under 37 C.F.R. §1.17(p) is required.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicant does not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

July 17, 2002 W

Respectfully submitted,

K40,625

Herbert I. Cantor

Registration No. 24,392

CROWELL & MORING, LLP

P.O. Box 14300

Washington, DC 20044-4300

Telephone No.: (202) 624-2500

Facsimile No.: (202) 628-8844

FORM PTO-1449

EXAMINER:

U.S. Department of Commercial EMARK
Patent & Trademark Office

Attorney Docket No. 1830/50325

Serial No. 09/933,717

Applicant:

Masahiro IMOTO

RECEIVED

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

Filing Date August 22, 2001 Group JUL 2 2 2002

			IIS	PATENT DOCUMENTS		TECH	CENTE	<del>1 1600/</del>
Examiner		Document	0.5.			Sub-	Filin	g Date
Initial		Number	Date	Name	Class	Class		opriate)
	AA	3933836	01/1976	Yale, et al.				
	AB	5250498	10/1993	Andree, et al.				
	AC	5049558	09/1991	Bradbury, et al.				
	AD	4616025	10/1986	Exer, et al.				
	AE	4873243	10/1989	Wermuth, et al.				
	AF	3998958	12/1976	Rasmussen, et al.				
	AG	4742060	05/1988	Shiokawa, et al.				
			FOREIC	ON PATENT DOCUMENTS				
Examiner		Document				Sub-	TRANSLATION	
Initial		Number	Date	Name	Class	Class	Yes	No
	AH	52095666	11/1977	Japan			Abstract	
	ΑI	63253084	02/1989	Japan			Abstrac	et Only
	AJ	0857725	08/1998	Europe				
	AK	0592676	04/1994	Europe				
	AL	0639569	02/1995	Europe				
	AM	0268915	06/1988	Europe			Abstrac	et
	AN	93/03714	03/1993	WO				
	AO	96/14844	05/1996	wo				
		OTHER DOCU	MENTS (Incl	uding Author, Title, Date, P	ertinent Pag	es, etc.)		
	AP	Lucia COX, et al., "Sorption-desorption of imidacloprid and its metabolites in soils" J.  Agric. Food Chem., 1997						
	AQ	Rai BANSAL, et al., "Synthesis of New Functionalized Dichlorophosphines: Precursors of Dicoordinated Phosphorus Heterocycles" Tetrahedron Letters, Vol. 32, 1991						
	AR	Joshua ROKACH, et al., "Cyclic Amidine Inhibitors of Indolamine N-Methyltransferase"  Journal of Medicinal Chemistry, Vol. 22, No. 3, 1979						
	AS	Anita MELIKIAN, et al., "Condensation of Muscimol or Thiomuscimol with Aminopyridazines Yeilds GABA-A Antagonists" J. Med. Chem. Vol. 35, 1992						
	АТ							
EXAMIN	JER			DATE CONSIDER	ED			

Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.

	7 111 1 9 2					
FORM PTO-1449	U.S. Department of Commerce Patent & Trademark Office	Attorney Docket No. 1830/50325	Serial No. 09/933,717	ECH CE		
			<u>.</u>		.29	
STATEMEN	TION DISCLOSURE IT I sheets if necessary)	Filing Date August 22, 2001	Group	1600/2	2 2002	
				8		4
	OTHER DOCUMENTS (In	ncluding Author, Title, Date, I	Pertinent Pages, etc.)			
AU	D. J. BROWN, et al., "The Din	nroth Rearrangement. Part VIII.	Rate Enhancement by			

· · · · · · · · · · · · · · · · · · ·			
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)	3		
D. J. BROWN, et al., "The Dimroth Rearrangement. Part VIII. Rate Enhancement by Electron-withdrawal in Simple Iminopyrimidines" J. Chem. Soc., 1967			
A. J. LAYTON, et al., "Isothiazoles. Part XI. Carbinols, Aryl Ketones and Aminomethyl Derivatives of Isothiazoles" J. Chem. Soc., 1968			
John A. ZOLTEWICZ, et al., "Covalent Amination. Substituent Effects on the Site of Addition of Ammonia to Quaternized Pyridines and Pyrazines" J. Org. Chem., Vol. 41, 1976			
Juergen LIEBSOHER, et al., "Synthesis of Imidazoles by Reaction of N-Benzylated Amindines with Carboxylic Acid Derivatives" J. parkt. Chem., Vol. 330, 1988			
Motohiro TOMIZAWA, et al., "Structure-Activity Relationship of Nicotinoids and Imidacloprid Analogs" J. Pesticide Chem., Vol. 18, 1993			
Shirley Lee CHAO, et al., "Interaction of Imidacloprid Metabolites and Analogs with the Nicotinic Acetylcholine Receptor of Mouse Brain in Relation to Toxicity" Pesticide Biochemistry and Physiology, Vol. 58, 1997			
Motohiro TOMIZAWA, et al., "Minor structural changes in nicotinoid insecticides confer differential subtype selectivity for mammalian nicotinic acetylcholine receptors" British Journal of Pharmacology, Vol. 127, 1999			
Konstantin KARAGHIOSOFF, et al., "1,4,2-Diazaphospholo[4,5-a]pyridine" Chemistry Science, Vol. 47, 1992			
Alan R. KATRITZKY, et al., "Novel Ring Opening of Aminoheterocycles: Facile Syntheses of w-Alkylaminopentadienenitriles" Department of Chemistry, University of Florida, December 24, 1981			
Wolfgang HANEFELD, et al., "Studies on 1,3-thiazines, XXIII. Novel transformations of tetrahydro-1,3-thiazine-2-thiones by thionyl chloride" Arch. Pharm., Vol. 318, 1985			
Bachir LATLI, et al., "Novel and potent 6-chloro-3-pyridinylmethyl ligands for the alpha.4.beta.2 neuronal nicotinic acetylcholine receptor" Chemical Abstracts Service, database accession no. 1998:529637			
V. A. KOVTUNENKO, et al., Synthesis of pyrido[1,2-b][2,4]benzodiazepine-6(11H)-imines" Chemical Abstracts, vol. 108, no. 19, May 9, 1988			
European Search Report			
	D. J. BROWN, et al., "The Dimroth Rearrangement. Part VIII. Rate Enhancement by Electron-withdrawal in Simple Iminopyrimidines" J. Chem. Soc., 1967  A. J. LAYTON, et al., "Isothiazoles. Part XI. Carbinols, Aryl Ketones and Aminomethyl Derivatives of Isothiazoles" J. Chem. Soc., 1968  John A. ZOLTEWICZ, et al., "Covalent Amination. Substituent Effects on the Site of Addition of Ammonia to Quaternized Pyridines and Pyrazines" J. Org. Chem., Vol. 41, 1976  Juergen LIEBSOHER, et al., "Synthesis of Imidazoles by Reaction of N-Benzylated Amindines with Carboxylic Acid Derivatives" J. parkt. Chem., Vol. 330, 1988  Motohiro TOMIZAWA, et al., "Structure-Activity Relationship of Nicotinoids and Imidacloprid Analogs" J. Pesticide Chem., Vol. 18, 1993  Shirley Lee CHAO, et al., "Interaction of Imidacloprid Metabolites and Analogs with the Nicotinic Acetylcholine Receptor of Mouse Brain in Relation to Toxicity" Pesticide Biochemistry and Physiology, Vol. 58, 1997  Motohiro TOMIZAWA, et al., "Minor structural changes in nicotinoid insecticides confer differential subtype selectivity for mammalian nicotinic acetylcholine receptors" British Journal of Pharmacology, Vol. 127, 1999  Konstantin KARAGHIOSOFF, et al., "1,4,2-Diazaphospholo[4,5-a]pyridine" Chemistry Science, Vol. 47, 1992  Alan R. KATRITZKY, et al., "Novel Ring Opening of Aminoheterocycles: Facile Syntheses of w-Alkylaminopentadienenitriles" Department of Chemistry, University of Florida, December 24, 1981  Wolfgang HANEFELD, et al., "Studies on 1,3-thiazines, XXIII. Novel transformations of tetrahydro-1,3-thiazine-2-thiones by thionyl chloride" Arch. Pharm., Vol. 318, 1985  Bachir LATLI, et al., "Novel and potent 6-chloro-3-pyridinylmethyl ligands for the alpha-4-beta-2 neuronal nicotinic acetylcholine receptor" Chemical Abstracts Service, database accession no. 1998:529637  V. A. KOVTUNENKO, et al., Synthesis of pyrido[1,2-b][2,4]benzodiazepine-6(11H)-imines" Chemical Abstracts, vol. 108, no. 19, May 9, 1988	D. J. BROWN, et al., "The Dimroth Rearrangement. Part VIII. Rate Enhancement by Electron-withdrawal in Simple Iminopyrimidines" J. Chem. Soc., 1967  A. J. LAYTON, et al., "Isothiazoles. Part XI. Carbinols, Aryl Ketones and Aminomethyl Derivatives of Isothiazoles" J. Chem. Soc., 1968  John A. ZOLTEWICZ, et al., "Covalent Amination. Substituent Effects on the Site of Addition of Ammonia to Quaternized Pyridines and Pyrazines" J. Org. Chem., Vol. 41, 1976  Juergen LIEBSOHER, et al., "Synthesis of Imidazoles by Reaction of N-Benzylated Amindines with Carboxylic Acid Derivatives" J. parkt. Chem., Vol. 330, 1988  Motohiro TOMIZAWA, et al., "Structure-Activity Relationship of Nicotinoids and Imidacloprid Analogs" J. Pesticide Chem., Vol. 18, 1993  Shirley Lee CHAO, et al., "Interaction of Imidacloprid Metabolites and Analogs with the Nicotinic Acetylcholine Receptor of Mouse Brain in Relation to Toxicity" Pesticide Biochemistry and Physiology, Vol. 58, 1997  Motohiro TOMIZAWA, et al., "Minor structural changes in nicotinoid insecticides confer differential subtype selectivity for mammalian nicotinic acetylcholine receptors" British Journal of Pharmacology, Vol. 127, 1999  Konstantin KARAGHIOSOFF, et al., "1,4,2-Diazaphospholo[4,5-a]pyridine" Chemistry Science, Vol. 47, 1992  Alan R. KATRITZKY, et al., "Novel Ring Opening of Aminoheterocycles: Facile Syntheses of w-Alkylaminopentadienenitriles" Department of Chemistry, University of Florida, December 24, 1981  Wolfgang HANEFELD, et al., "Studies on 1,3-thiazines, XXIII. Novel transformations of tetrahydro-1,3-thiazine-2-thiones by thionyl chloride" Arch. Pharm., Vol. 318, 1985  Bachir LATLI, et al., "Novel and potent 6-chloro-3-pyridinylmethyl ligands for the alpha-4-beta? neuronal nicotinic acetylcholine receptor" Chemical Abstracts Service, database accession no. 1998:529637  V. A. KOVTUNENKO, et al., Synthesis of pyrido[1,2-b][2,4]benzodiazepine-6(11H)-imines" Chemical Abstracts, vol. 108, no. 19, May 9, 1988	D. J. BROWN, et al., "The Dimroth Rearrangement. Part VIII. Rate Enhancement by Electron-withdrawal in Simple Iminopyrimidines" J. Chem. Soc., 1967  A. J. LAYTON, et al., "Isothiazoles. Part XI. Carbinols, Aryl Ketones and Aminomethyl Derivatives of Isothiazoles" J. Chem. Soc., 1968  John A. ZOLTEWICZ, et al., "Covalent Amination. Substituent Effects on the Site of Addition of Ammonia to Quaternized Pyridines and Pyrazines" J. Org. Chem., Vol. 41, 1976  Juergen LIEBSOHER, et al., "Synthesis of Imidazoles by Reaction of N-Benzylated Amindines with Carboxylic Acid Derivatives" J. parkt. Chem., Vol. 330, 1988  Motohiro TOMIZAWA, et al., "Structure-Activity Relationship of Nicotinoids and Imidacloprid Analogs" J. Pesticide Chem., Vol. 18, 1993  Shirley Lee CHAO, et al., "Interaction of Imidacloprid Metabolites and Analogs with the Nicotinic Acetylcholine Receptor of Mouse Brain in Relation to Toxicity" Pesticide Biochemistry and Physiology, Vol. 58, 1997  Motohiro TOMIZAWA, et al., "Minor structural changes in nicotinoid insecticides confer differential subtype selectivity for mammalian nicotinic acetylcholine receptors" British Journal of Pharmacology, Vol. 127, 1999  Konstantin KARAGHIOSOFF, et al., "1,4,2-Diazaphospholo[4,5-a]pyridine" Chemistry Science, Vol. 47, 1992  Alan R. KATRITZKY, et al., "Novel Ring Opening of Aminoheterocycles: Facile Syntheses of w-Alkylaminopentadienenitriles" Department of Chemistry, University of Florida, December 24, 1981  Wolfgang HANEFELD, et al., "Studies on 1,3-thiazines, XXIII. Novel transformations of tetrahydro-1,3-thiazine-2-thiones by thionyl chloride" Arch. Pharm., Vol. 318, 1985  Bachir LATLI, et al., "Novel and potent 6-chloro-3-pyridinylmethyl ligands for the alpha. 4-beta.2 neuronal nicotinic acetylcholine receptor" Chemical Abstracts Service, database accession no. 1998:529637  V. A. KOVTUNENKO, et al., Synthesis of pyrido[1,2-b][2,4]benzodiazepine-6(11H)-imines" Chemical Abstracts, vol. 108, no. 19, May 9, 1988

EXAMINER

EXAMINER:

DATE CONSIDERED

Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication.